



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No : 10/005,052
Applicant : Monsalve-Gonzalez et al.
Filed : December 4, 2001
Title : Bran and Bran Containing Products of
Improved Flavor and Methods of Preparation

TC/A.U. : 1761
Examiner : L. Tran

Docket No. : 5553

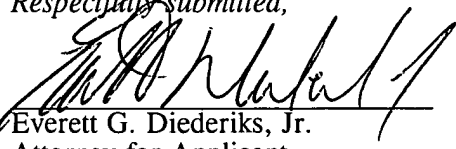
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Respectfully submitted,


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Date February 14, 2008



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICANT'S APPEAL BRIEF

**Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450**

Dear Sir:

The Applicants of the above-identified U.S. patent application submit this Appeal Brief in support of an appeal from the September 19, 2007 final rejection of claims 1-3 and 5-48 in this application. The fee required under 37 C.F.R. § 1.117(f) accompanies this brief.

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B. Whether claims 1-3, 5-21, 23-26, 33-39, 41 and 48 are properly rejected under 35 U.S.C. § 102(e) as being anticipated by International Publication No. WO 02/21936 to Gonzalez et al.

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I. REAL PARTY IN INTEREST

The above-identified patent application is subject to an obligation of assignment to General Mills, Inc.

II. RELATED APPEALS AND INTERFERENCES

There does not exist any known related appeals or interferences that would directly affect or be directly affected by or have a bearing on the decision in this case.

III. STATUS OF CLAIMS

Presently, claim 4 has been canceled and claims 1-3 and 5-48 stand finally rejected. The rejected claims are herewith appealed.

IV. STATUS OF AMENDMENTS

No amendments to the claims have been made following the final rejection mailed in the Office Action of September 19, 2007 (hereafter "the Office Action").

V. SUMMARY OF CLAIMED SUBJECT MATTER

The present invention is directed to bran and bran containing products of improved flavor and methods of preparation. More specifically, a mild oxidation process is employed to chemically alter bran such that the bran has a reduced ferulic acid concentration and an elevated vanillin concentration. See the summary on page 3 of the application. More specifically, the present invention, as defined by claim 1, is a method for treating a grain based product bran including reacting bran with 0.1 to 1 parts ozone per 100 parts bran to produce treated bran having a reduced ferulic acid finished concentration of less than 30 ppm, and wherein the bran has an elevated finished

concentration of vanillin. See page 13, lines 5-7; page 14, lines 8-10; and page 15, lines 4-6.

Claim 3 further defines the invention by providing that the finished ferulic concentration of the bran is less than 50% of the native concentration of the bran. See page 13, lines 5-9.

Similarly, claim 5 further defines the invention by providing that the finished concentration of vanillin is at least twice the native concentration of vanillin. See page 14, lines 8-12.

The present invention is further defined by the method of claim 10, wherein bran is treated with a chelating agent, the pH of the bran is reduced with acid to about 4-6, the bran is reacted with ozone to produce treated bran having a reduced ferulic acid finished concentration, and the treated bran is blanched to produce a blanched bran having an elevated concentration of vanillin. See page 9, line 14 through page 10, line 21; page 11, line 26 through page 12, line 5; page 12, lines 19-22; and page 11, lines 9-25.

Claim 19 further limits claim 10 and requires that 100 parts acidified bran is contacted with about 0.3 to 0.7 parts ozone.

Products of the present invention are set forth in claims 33-36, 39, 40 and 45. More specifically, products are produced having a reduced ferulic acid concentration of less than 30 ppm and elevated vanillin content. See page 13, lines 5-9 and pages 16-19.

Products of the present invention are also set forth in claims 37 and 38. Such products have a reduced ferulic acid concentration and an elevated concentration of vanillin. See pages 16-19.

Additional products of the present invention are set forth in claims 41-46 and 48. These claims are directed to products having a ferulic acid concentration of less than 30 ppm and a

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

A. Whether claims 1-3, 5-9 and 16-48 are properly rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,844,924 to Stanley in view of U.S. Patent No. 4,372,812 to Phillips et al.

B. Whether claims 1-3, 5-21, 23-26, 33-39, 41 and 48 are properly rejected under 35 U.S.C. § 102(e) as being anticipated by International Publication No. WO 02/21936 to Gonzalez et al.

VII. ARGUMENTS

A. Whether claims 1-3, 5-9 and 16-48 are properly rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,844,924 to Stanley in view of U.S. Patent No. 4,372,812 to Phillips et al.

1) Claims 1-2, 6-9, 16-18, 20-22, 24-32 and 47

In rejected claims 1-2, 6-9, 16-18, 20-22, 24-32 and 47 under 35 U.S.C. § 103(a) as being unpatentable over Stanley in view of Phillips et al., the Examiner has improperly combined references and failed to provide a combination of references that teach each and every limitation in the claims.

In order to establish a prima facie case of obviousness, each and every limitation of the claims must be met. See M.P.E.P. § 2143 (*citing In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)). There must be an apparent reason for one of ordinary skill in the art to combine known elements in the fashion claimed by the patent at issue.

This analysis should be made explicit. See *KSR International Co. v. Teleflex Inc.*, 127 U.S.1727, 1732 (2007), citing *In re Kahn*, 441 F. 3d 977, 988 (CA Fed. 2006). As stated by the Court of Appeals for the Federal Circuit, "[i]t is necessary to consider 'the reality of the circumstances, in other words, common sense--in deciding in which fields a person of ordinary skill would reasonably be expected to look for a solution to the problem facing the inventor.'" *In re Oetiker*, 977 F.2d 1443, 1447 (Fed. Cir. 1992), (quoting *In re Wood*, 599 F.2d 1032, 1036 (C.C.P.A. 1979)). Further, if a reference disclosure has a different purpose from the claimed invention, the inventor would accordingly have had less motivation or occasion to consider it then they would if the reference relates to the same problem. *Id. citing In re Clay*, 966 F.2d 656, 659-60 (Fed. Cir. 1992).

The present invention is directed to bran having a reduced ferulic acid concentration and an elevated vanillin concentration, as well as a specific method of producing the same utilizing a mild ozone oxidation treatment. In contrast, Stanley is concerned with a method of decreasing the color of dietary fiber material by reacting the material with an esterifying agent and then bleaching the fiber material. The Applicant is well aware of prior bran bleaching techniques. For example, in the background section of the application, the inventor noted that U.S. Patent Application Serial No. 09/663,914 set forth a method for bleaching with hydrogen peroxide. However, the present invention is not directed to optimizing the bleaching of bran. Importantly, the Applicant has discovered that substantial improvements in flavor of bran can be obtained by treatment to reduce a particular flavor constituent, ferulic acid, that is present at concentrations ranging only from about 20-50 parts per million (ppm) and, at the same time, performing this treatment in a manner which assures an increase in vanillin content. See page 3, lines 1-4 of the application.

Although Stanley notes that oxidative bleaching agents include peroxides, chlorites peracids and ozone, the only examples provided in Stanley require bleaching bran to extreme degrees with peracetic acid or hydrogen peroxide for **no less than 120 minutes** at one time. Specifically, see columns 4-7 of Stanley. It is important to note that driving the oxidation process of the present invention too far would result in

destruction of desirable vanillin. See, for example, page 15 of the application. As set forth on page 15 of the application, the duration of the ozone treatment step of the present invention is short and ranges from under a minute to up to 10 minutes. The oxidation of bran with peracetic acid or hydrogen peroxide for 120 minutes is simply not a mild oxygenation treatment and could not achieve the present invention. The Stanley process thus teaches away from the present invention, which is concerned with a mild oxygenation treatment of bran that drives the conversion of ferulic acid to vanillin such that the vanillin content of the bran is increased.

Regardless, as admitted by the Examiner on page 2 of the Office Action, Stanley does not disclose the amount of ozone. Furthermore, the Applicant notes that Stanley does not teach the reduced ferulic acid finished concentration or an elevated finished concentration of vanillin as is required in claim 1.

The Examiner then turns to Phillips et al., which is directed to a process for **chlorine-free bleaching of lignocellulosic pulp**. Phillips et al. is concerned with an alternative to chlorine bleaching of paper pulp to overcome the problems of corroded paper-making equipment and pollution, and allow recycling of bleaching fluid. Phillips et al. is not at all concerned with treating grain. Correspondingly, Phillips et al. does not teach or suggest increasing vanillin while reducing ferulic acid in grains. The invention of Phillips et al. derives its novelty from the sequence of specific bleaching stages, which include at least a peroxide bleaching stage and an ozone bleaching stage. See column 4, lines 29-63 of Phillips et al. The peroxide bleaching stage is internal or upstream of the ozone stage. See column 5, lines 3-4 of Phillips et al.

There is simply no apparent reason for one of ordinary skill in the art to replace the peracetic acid or hydrogen peroxide of Stanley with the concentration of ozone from one step in the pulp-bleaching process of Phillips et al. while forgoing the required hydrogen peroxide bleaching step in Phillips et al. Furthermore, Phillips et al. is in a completely different field than both Stanley and the present invention, and there is simply no motivation, suggestion or teaching to combine references from entirely different fields

to solve a problem that neither one of them recognizes or addresses, i.e., the reduction of ferulic acid concentrations and increase of vanillin concentrations in bran. In other words, one of ordinary skill in the food art would not look to the paper bleaching arrangement of Phillips et al. But even if Phillips et al. is employed, it should be used for what it teaches, i.e., applying a sequence of specific bleaching stages. Regardless, the Examiner states that, "In absence of showing of criticality or unexpected result, it would have been obvious to one skilled in the art to determine the amount of ozone to be used following the teaching of Phillips et al. which shows [an] amount in the range which cause[s] bleaching to occur." See page 3 of the Office Action. The Applicant notes that the critical nature of a difference or of a limitation need not necessarily be pointed out in the specification, and it need not be expressly stated to be critical. See *Jennings v. Brenner*, 255 F.Supp. 410 (DCDC 1966). Still, it is clear from the present application that the amount of oxidation is critical to the present invention. As set forth on pages 14 and 15 of the present application, if excessive ozone treatment occurs, the oxygenation process will be driven so far that desirable vanillin is destroyed, resulting in bran actually having lower levels of vanillin.

Even if Stanley and Phillips et al. could be properly combined and only the ozone stage of the Phillips et al. arrangement were used in Stanley, the combination would still not teach or suggest utilizing a mild ozone oxidation treatment to reduce ferulic acid and increase vanillin in bran, let alone the specifically claimed treatment with 0.1 to 1 parts ozone per 100 parts bran and/or a finished ferulic acid concentration of less than 30 ppm as set forth in claim 1. In fact, both Stanley and Phillips et al. teach the use of multiple bleaches, thus teaching away from the present invention. Stanley teaches that peracetic acid and/or hydrogen peroxide are preferred bleaches, while Phillips et al. only discusses the use of ozone bleaching in conjunction with hydrogen peroxide bleaching. In other words, one of ordinary skill in the art would **not** find it apparent to apply only the ozone portion of a three-part pulp bleaching process (Phillips et al.) to bran based on a reference (Stanley) teaching highly oxidative bleaching using peracetic acid or hydrogen peroxide.

The desirability of a mild ozone oxidation treatment to increase the vanillin level and decrease ferulic acid in bran is clearly not addressed in any of the prior art cited by the Examiner. In fact, neither Stanley nor Phillips et al. have anything to do with reducing ferulic acid or increasing vanillin. Instead the Examiner simply states “reducing ferulic acid and increasing vanillin are an obvious result of the reaction of bran with ozone” and “such properties will also be found in the Stanley product.” See page 3 of the Office Action. This is simply not the case. **Simply stated, the combination does not employ the same mild ozone oxidation treatment, makes no mention of .1 to 1 parts ozone per 100 parts bran, makes no mention of reducing ferulic acid (let alone to less than 30 ppm) and has no disclosure on increasing the concentration of vanillin.** The present invention offers a milder oxygenation treatment of bran than the hydrogen peroxide bleaching method of the prior art, resulting in elevated vanillin levels. See pages 2-3 of the application. The Applicant clearly sets forth the importance of the ozone range claimed in the subject application. More specifically, too much oxygenation leads to the destruction of desirable vanillin. See page 15, lines 1-6 of the application. The Examiner's assertion that reduced ferulic acid and increased vanillin would be found in the Stanley product is simply not supported by the evidence.

2) Claim 3

The Examiner has failed to provide a combination of references that teach or suggest a method for treating grain by reacting grain with 0.1 to 1 parts ozone per 100 parts bran to produce bran having a reduced ferulic acid concentration less than 30 ppm and an increased vanillin concentration, let alone a method wherein bran has a finished ferulic concentration of less than 50% of the native concentration of the bran, as required by claim 3. In fact, neither Stanley nor Phillips et al. mention ferulic acid or vanillin at all. Therefore, a prima facie case of obvious has not been proven by the Examiner.

3) Claim 5

The Examiner has failed to provide a combination of references that teach or suggest a method for treating grain by reacting grain with 0.1 to 1 parts ozone per 100 parts bran to produce bran having a reduced ferulic acid concentration less than 30 ppm and an increased vanillin concentration, let alone a method wherein bran has a finished vanillin concentration of at least twice the native concentration of vanillin, as required by claim 4. In fact, neither Stanley nor Phillips et al. mention ferulic acid or vanillin at all. Therefore, a prima facie case of obvious has not been proven by the Examiner.

4) Claims 19 and 23

The Examiner has failed to provide a combination of references that teach or suggest a method for treating grain by reacting grain with ozone to produce bran having a reduced ferulic acid concentration less than 30 ppm and an increased vanillin concentration, let alone a method wherein 100 parts acidified bran is treated with about 0.3 to 0.7 parts ozone. Instead, the Examiner only points to Phillips et al., which is directed to a non-analogous paper pulp bleaching process wherein an ozone range of 0.2 to 1% is utilized in conjunction with at least a peroxide bleaching step to treat lignocellulosic pulp. See column 4, lines 29-62 of Phillips et al. It is respectfully asserted that no prima facie case of obviousness has been proven.

5) Claims 33-36, 39, 40 and 45

The Examiner has failed to provide any reference or combination of references which teach a product of the present invention, or which renders the product of the present invention obvious. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. See M.P.E.P. § 2113, *citing In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). The Examiner has failed to provide a single reference having anything to do with ferulic acid or vanillin. Instead, the Examiner simply states that "The properties of

reducing ferulic acid and increasing vanillin are an obvious result of the reaction of bran with ozone.” See page 3 of the Office Action. Absent impermissible hindsight, there is simply no support for the Examiner’s assertion. Instead, the assertion is just an unsubstantiated conclusion. Both Stanley and Phillips et al. teach the use of multiple strong bleaches, clearly teaching away from the present invention. Stanley teaches that peracetic acid and/or hydrogen peroxide are preferred bleaches, while Phillips et al. only discusses the use of ozone for bleaching in conjunction with hydrogen peroxide bleaching. The present invention offers a specifically defined, mild oxygenation treatment of bran, resulting in elevated vanillin levels and low ferulic acid levels. A product created by this method has a different chemical composition than prior art bran and improved flavor.

6) Claims 37 and 38

As with product claims 33-36, 39, 40 and 45, the Examiner has failed to provide any reference or combination of references which teach a product of the present invention, or which renders the product of the present invention obvious. More specifically, the Examiner has failed to provide any references which teach or suggest a bran product including reduced ferulic acid levels and elevated vanillin levels, as is required by claims 37 and 38. Therefore, a prima facie case of obviousness has not been proven by the Examiner.

7) Claims 41-44, 46 and 48

As with product claims 33-36, 39, 40 and 45, the Examiner has failed to provide any reference or combination of references which teach a product of the present invention, or which renders the product of the present invention obvious. More specifically, the Examiner has failed to provide any references which teach or suggest a bran product including reduced ferulic acid levels and elevated vanillin levels, let alone a grain product having a ferulic acid concentration of less than 30 ppm, as is required by

claims 41-44, 46 and 48. Therefore, a prima facie case of obviousness has not been proven by the Examiner.

B. Whether claims 1-3, 5-21, 23-26, 33-39, 41 and 48 are properly rejected under 35 U.S.C. § 102(e) as being anticipated by International Publication No. WO 02/21936 to Gonzalez et al.

1) Claims 1-2, 6-9, 16-21 and 23-26

In rejected claims 1-2, 6-9, 16-21 and 23-26 under 35 U.S.C. § 102(e) as being anticipated by Gonzalez et al., the Examiner has: a) improperly rejected the § 1.132 affidavit which sets forth that the invention in Gonzalez et al. is not by another; and b) failed to provide a reference that teaches each and every limitation in the claims.

a. The improper rejection of the § 1.132 Affidavit filed July 5, 2007.

On page 6 of the Office Action, the Examiner stated that the § 1.132 Affidavit filed July 5, 2007 was insufficient to overcome the § 102(e) rejection. The Applicant respectfully asserts that the Examiner's reasons for rejecting the affidavit are both incomplete and inaccurate. More specifically, on page 6 of the Office Action, the Examiner stated that "The declaration does not state that the inventors listed in WO 02/21936 were not the inventors of the patent; the declaration also does not state how the other inventors contributed to the invention since they were listed on the patent." It is unclear what the Examiner means by this statement. There is no requirement for the Applicant to state how each inventor contributed to the invention in Gonzalez et al. The relevant part of the M.P.E.P. states that:

When any claim of an application or a patent under reexamination is rejected, the inventor of the subject matter of the rejected claim....may submit an appropriate oath or declaration to establish **invention of the subject matter** of the rejected

claim prior to the effective date of the reference or activity on which the rejection is based. M.P.E.P. § 715 (emphasis added).

The Affidavit submitted in the present case indicates that the inventors of claimed subject matter were also the inventors of the subject matter in Gonzalez et al. that is relied on by the Examiner in her rejection of the current claims under 35 U.S.C. § 102(e). During a telephonic interview with the Examiner on November 7, 2007, the Applicant requested clarification on the meaning of the rejection, at which time the Examiner stated that she was not clear on the rejection, but was told by an “expert” that she should reject the Affidavit. As the undersigned has successfully filed similar affidavits in the past and the Examiner could not explain the position taken in the Office Action, it is respectfully submitted that the rejection of the § 1.132 Affidavit for the reasons given is a clear error. Certainly, the Applicant deserves an understandable explanation or the Affidavit should be accepted to remove the reference as available prior art.

b) The Examiner's failure to address each and every limitation in the claims.

Regardless of whether or not Gonzalez et al. is relevant prior art under § 102(e), the reference does not teach or suggest each and every limitation of the present claims. The test for patentability under 35 U.S.C. § 102 is basically whether a single reference teaches or enables each of the claimed elements of the claimed subject matter (arranged as in the claim) expressly or inherently as interpreted by one of ordinary skill in the art. *W.L. Gore and Associates v. Garlock, Inc.* 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), Cir. denied, 469 US 851 (1984). “A claim is anticipated only if each and every element set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. V. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). “The identical invention must be shown in as complete detail as is contained in the ...claim.” *Richardson v. Suzuki Motor co.*, 868 F.2d. 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

The Examiner has stated that the ferulic acid is reduced and that the “properties of the reduced ferulic acid and increased vanillin are inherent in the product disclosed in the patent [Gonzalez et al.]” See page 6 of the Office Action. This is simply not the case. Gonzalez et al. teaches **increasing** the availability of ferulic acid and states that vanillic acids **are no longer available** in the bleached bran, which **clearly teaches away** from the present invention. See page 16 of Gonzalez et al. Thus, the limitations that the bran include a reduced ferulic acid concentration and an elevated vanillin concentration are not taught by Gonzalez et al.

2) Claim 3

The Examiner has failed to provide a single reference that teaches a method for treating grain by reacting grain with 0.1 to 1 parts ozone per 100 parts bran to produce bran having a reduced ferulic acid concentration less than 30 ppm and an increased vanillin concentration, let alone a method wherein bran has a finished ferulic acid concentration of less than 50% of the native concentration of the bran, as required by claim 3. In fact, Gonzalez et al. teaches bran having an increased ferulic acid concentration. Regardless, when the July 5, 2007 § 1.132 affidavit is properly considered, Gonzalez et al. is not prior art under § 102(e).

3) Claim 5

The Examiner has failed to provide a single reference that teaches or suggests a method for treating grain by reacting grain with 0.1 to 1 parts ozone per 100 parts bran to produce bran having a reduced ferulic acid concentration less than 30 ppm and an increased vanillin concentration, let alone a method wherein bran has a finished vanillin concentration of at least twice the native concentration of vanillin, as required by claim 5. In fact, Gonzalez et al. teaches bran having no available vanillic acids. Regardless, when the July 5, 2007 § 1.132 affidavit is properly considered, Gonzalez et al. is not prior art under § 102(e).

4) Claims 10-15

In rejected claims 10-15 under 35 U.S.C. § 102(e) as being anticipated by Gonzalez et al., the Examiner has: a) improperly rejected the § 1.132 affidavit setting forth that the invention in Gonzalez et al. is not by another; and b) failed to provide a reference that teaches each and every limitation in the claims.

a. The improper rejection of the § 1.132 Affidavit filed July 5, 2007.

On page 6 of the Office Action, the Examiner stated that the § 1.132 Affidavit filed July 5, 2007 was insufficient to overcome the § 102(e) rejection. The Applicant respectfully asserts that the Examiner's reasons for rejecting the affidavit are both incomplete and inaccurate. More specifically, on page 6 of the Office Action, the Examiner stated that "[t]he declaration does not state that the inventors listed in the WO 02/21936 were not the inventors of the patent; the declaration also does not state how the other inventors contributed to the invention since they were listed on the patent." However, there is no requirement for the Applicant to state how each inventor contributed to the invention in Gonzalez et al. The Affidavit submitted in the present case indicates that the inventors of claimed subject matter were also the inventors of the subject matter in Gonzalez et al. that is relied on by the Examiner in her rejection of the current claims under 35 U.S.C. § 102(e). It is therefore respectfully submitted that the rejection of the § 1.132 Affidavit for the reasons given is a clear error.

b. The Examiner's failure to address each and every limitation in the claims.

Regardless of whether or not Gonzalez et al. is relevant prior art under § 102(e), the reference does not teach or suggest each and every limitation of the present claims. The Examiner has stated that the ferulic acid is reduced and that the "properties of the reduced ferulic acid and increased vanillin are inherent in the product disclosed in the patent [Gonzalez et al.]". See page 6 of the Office Action. This is simply not the case. Gonzalez et al. teaches **increasing** the availability of ferulic acid and states that vanillic

acids **are no longer available** in the bleached bran, which clearly teaches away from the present invention. See page 16 of Gonzalez et al. Thus, the limitation that bran includes a reduced ferulic acid concentration and an elevated vanillin concentration is not taught by Gonzalez et al. and claims 10-15 are not anticipated.

5) Claims 33-36 and 39

The Examiner has failed to provide a reference teaching a product of the present invention. The test for patentability under 35 U.S.C. § 102 is basically whether a single reference teaches or enables each of the claimed elements of the claimed subject matter (arranged as in the claim) expressly or inherently as interpreted by one of ordinary skill in the art. *W.L. Gore and Associates v. Garlock, Inc.* 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), Cir. denied, 469 US 851 (1984). Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. See M.P.E.P. § 2113, citing *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). A product created by the present method has a different chemical composition than the bran of Gonzalez et al. Specifically, after the bleaching process of Gonzalez et al., **ferulic acid becomes more available** and components such as **vanillic acids are no longer available**. See page 16 of Gonzalez et al. The product of the present invention has a reduced ferulic acid content and an increased vanillin content. Therefore, the teachings in Gonzalez et al. are basically opposite to that of the present invention such that the claims of the present invention are clearly not anticipated by Gonzalez et al. Regardless, when the July 5, 2007 § 1.132 affidavit is properly considered, Gonzalez et al. is not prior art under § 102(e).

6) Claims 37 and 38

As with product claims 33-46 and 48, the Examiner has failed to provide a reference teaching a product of the present invention. The test for patentability under 35 U.S.C. § 102 is basically whether a single reference teaches or enables each of the claimed elements of the claimed subject matter (arranged as in the claim) expressly or

inherently as interpreted by one of ordinary skill in the art. *W.L. Gore and Associates v. Garlock, Inc.* 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), Cir. denied, 469 US 851 (1984). Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. See M.P.E.P. § 2113, citing *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). A product created by the present method has a different chemical composition than the bran of Gonzalez et al. Specifically, after the bleaching process of Gonzalez et al., ferulic acid becomes **more available** and components such as **vanillic acids are no longer available**. See page 16 of Gonzalez et al. The product of the present invention has a reduced ferulic acid content and an increased vanillin content. Therefore, the claims of the present invention are clearly not anticipated by Gonzalez et al. Regardless, when the July 5, 2007 § 1.132 affidavit is properly considered, Gonzalez is not prior art under § 102(e).

7) Claims 41 and 48

The Examiner has failed to provide a reference teaching a product of the present invention. The test for patentability under 35 U.S.C. § 102 is basically whether a single reference teaches or enables each of the claimed elements of the claimed subject matter (arranged as in the claim) expressly or inherently as interpreted by one of ordinary skill in the art. *W.L. Gore and Associates v. Garlock, Inc.* 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), Cir. denied, 469 US 851 (1984). Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. See M.P.E.P. § 2113, citing *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). A product created by the present method has a different chemical composition than the bran of Gonzalez et al. Specifically, after the bleaching process of Gonzalez et al., **ferulic acid becomes more available** and components such as **vanillic acids are no longer available**. See page 16 of Gonzalez et al. The product of the present invention has a reduced ferulic acid content and an increased vanillin content. Therefore, the claims of the present invention are clearly not anticipated by Gonzalez et

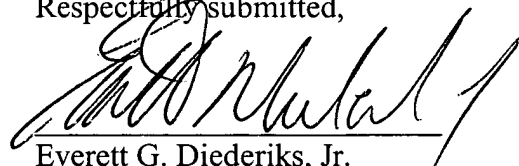
al. Regardless, when the July 5, 2007 § 1.132 affidavit is properly considered, Gonzalez et al. is not prior art under § 102(e).

C. Conclusions

The Examiner has failed to provide a proper combination of references which teaches or suggests each and every limitation of the pending claims. Neither Stanley nor Phillips et al. mention ferulic acid or vanillin at all, and certainly do not attempt to solve the same problem as the present invention. Moreover, Phillips et al. is directed to bleaching paper pulp, and it would not be reasonable to assume that one skilled in the art would turn to Phillips et al. when attempting to improve the flavor of bran products. With respect to the rejections under § 102, when the § 1.132 affidavit of July 5, 2007 is properly considered, Gonzalez et al. is not prior art under § 102. Regardless, Gonzalez et al. does not anticipate the pending claims and, in fact, directly teaches away from the present invention.

For at least the reasons set forth above, the Appellant respectfully submits that the present invention is patentably defined over the prior art of record such that the Examiner's rejections should be reverse and the application passed to issue.

Respectfully submitted,



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VIII. CLAIMS APPENDIX

1. A method for treating a grain based product bran, comprising:
Reacting bran having a native ferulic acid concentration with 0.1 to 1 parts ozone per 100 parts bran to produce treated bran having a reduced ferulic acid finished concentration of less than 30 ppm, wherein the bran has a native concentration of vanillin and wherein the treated bran has an elevated finished concentration of vanillin.
2. The method of claim 1, additionally comprising the step of:
Acidifying bran with an edible acidulant in amounts sufficient to reduce the pH of the bran to about 4-6 to form acidified bran prior to treating with ozone.
3. The method of claim 2 wherein the finished ferulic concentration of the treated bran is less than 50% of the native concentration of the bran.
5. The method of claim 1 wherein the finished concentration of vanillin is at least twice the native concentration of vanillin.
6. The method of claim 2 wherein the bran is derived from a member selected from the group consisting of barley, corn (maize), oats, rice, rye, soybeans, wheat, and mixtures thereof.
7. The method of claim 6 wherein the bran is wheat bran.
8. The method of claim 7 wherein the bran is red wheat bran.
9. The method of claim 1 wherein the bran is in dry powder form having an average particle size of about 100 microns.

10. A method for treating a grain based product bran, comprising:
 - Reacting bran having a native ferulic acid concentration and a native concentration of vanillin with ozone to produce treated bran having a reduced ferulic acid finished concentration;
 - Acidifying the bran with an edible acidulant in amounts sufficient to reduce the pH of the bran to about 4-6 to form acidified bran prior to treating with ozone;
 - Prior to acidifying, treating the bran with a chelating agent to remove transition metals to produce treated bran; and
 - Blanching the treated bran to inactivate catalase and peroxidase enzymatic systems to produce blanched bran having the reduced ferulic acid finished concentration and an elevated finished concentration of vanillin.
11. The method of claim 10 wherein the bran is treated with the chelating agent for about one (1) to fifteen (15) minutes at a temperature of about 70 to 90°C.
12. The method of claim 10 wherein the chelating agent is selected from the group consisting of orthophosphate, metaphosphate, pyrophosphate, polyphosphate, calcium ethylene diamine tetra acetic acid (EDTA) and sodium EDTA.
13. The method of claim 12 wherein the chelating agent is calcium EDTA or sodium EDTA in a concentration of between about 0.02 and 0.1%.
14. The method of claim 10 wherein the blanching step is performed at a temperature of between about 75 to 85°C for about three (3) to ten (10) minutes, further wherein residual enzyme activity is below about 10 CIU/g bran following the blanching step.
15. The method of claim 10 further comprising:
 - Washing and rinsing the bran to produce wet bran;
 - Filtering the wet bran to produce filtered wet bran; and

Drying the treated filtered wet bran to produce dried treated bran having a moisture content ranging from about 6% to 15%.

16. The method of claim 2 wherein the acidulant comprises a mineral acid.
17. The method of claim 2 wherein the acidulant comprises an edible organic acid.
18. The method of claim 2 wherein the bran is in powder form and has a moisture content ranging from about 6% to about 15%.
19. The method of claim 2 wherein the treatment step comprises contacting about 100 parts acidified bran with about 0.3 to 0.7 parts ozone.
20. The method of claim 1 wherein the bran is pure bran.
21. The method of claim 2 wherein the bran is admixed with flour.
22. The method of claim 17 wherein the edible organic acid is dissolved in water.
23. The method of claim 19 wherein the bran is reacted with ozone at atmospheric pressure.
24. The method of claim 20 additionally comprising the step of:
Blending the treated bran with flour to form a whole wheat flour comprising treated bran.
25. The method of claim 24 additionally comprising the step of:
Forming a dry mix for baked goods by admixing the whole wheat flour comprising treated bran with dry mix ingredients.

26. The method of claim 24 wherein all the flour in the dry mix is supplied by the whole wheat flour comprising the treated bran.
27. The method of claim 24 additionally comprising the steps of:
Combining the whole wheat comprising treated bran with cereal ingredients to form a cereal blend;
Cooking the cereal blend to form a cooked cereal dough;
Forming the cooked cereal dough into dried finished cereal pieces.
28. The method of claim 27 wherein the finished cereal pieces are puffed.
29. The method of claim 28 wherein the puffed cereal pieces are deep fat fried.
30. The method of claim 27 wherein the bran is wheat bran.
31. The method of claim 30 wherein at least a portion of the wheat bran is red wheat bran.
32. The method of claim 30 wherein the dried finished cereal pieces are flakes.
33. The product prepared by the method of claim 1.
34. The product prepared by the method of claim 2.
35. The product prepared by the method of claim 1.
36. The product prepared by the method of claim 1 having an antioxidant activity about 15 to 35% higher than native bran.
37. The product prepared by the method of claim 10.

38. The product prepared according to the method of claim 11.
39. The product prepared according to the method of claim 18.
40. The product prepared according to the method of claim 21 wherein about five (5)% treated bran, by weight, is added to the whole wheat flour.
41. A grain product comprising cereal bran having a ferulic acid concentration of less than 30 ppm and an elevated concentration of vanillin.
42. The grain product of claim 41 having a pH ranging from about 4-6.
43. The grain product of claim 42 having a moisture content ranging from about 10% to 15% prepared from soft white wheat or hard white wheat.
44. The grain product of claim 43 wherein the grain product is prepared from light bran.
45. The product of claim 40 having a pH of about 6.3 to 6.7.
46. The grain product of claim 41 in the form of a finished baked good.
47. The method of claim 31 wherein the whole wheat flour is admixed with sugar, salt, and leavening.
48. The grain product of claim 41 wherein the grain product is added to foods selected from the group consisting of dry mixes, ready-to-eat cereals and soy.

IX. EVIDENCE APPENDIX

- A. July 5, 2007 Affidavit Submitted Under 37 C.F.R. § 1.132



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No : 10/005,052
Applicant : Monsalve-Gonzales et al.
Filed : December 4, 2001
Title : Bran and Bran Containing Products of Improved
Flavor and Methods of Preparation

TC/A.U. : 1761
Examiner : L. Tran

Docket No. : 5553

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

STATEMENT FROM INVENTOR

Sir:

My name is Adelmo Monsalve-Gonzales, and this document is being provided in response to the rejection of claims 1-3, 6-21, 23, 24, 25, 26, 33, 34 and 36-39 of the above-identified U.S. patent application under 35 U.S.C. § 102(e) as being anticipated by WO 02/021936 in an Office Action dated June 1, 2006. To this end, I declare that only I and Aruna Prakash Kasturi jointly invented the subject matter of the WO 02/021936 document that is being relied upon by the Examiner as the basis for this rejection.

I hereby declare that statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 101 of title 18 of

Application Serial No. 10/005,052
Statement from Inventor
Page 2 of 2

the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Adelmo', enclosed within a hand-drawn oval.

Adelmo Monsalve-Gonzalez, Ph.D

Date:

11/7/2006

X. RELATED PROCEEDING APPENDIX

Not Applicable